Project Title:
Electron Heating in the Solar Wind

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Project Information:
The aim of this proposal is to model in as accurate a fashion as possible the evolution of elemental charge state fractions in the fast solar wind as it flow out of a coronal hole. Besides using the most up to date atomic physics data for this work, the important new feature will be a physics based model for the electron heating at heliocentric distance 1.5 R_sun or greater. The main goal will be to use the observed ionization fractions to constrain as tightly as possible the electron heating, which arises as gyrating ions in the presence of a density gradient excite lower hybrid waves, which then damp by heating the electrons. We expect this work to be of supreme relevance to current the NASA mission SOHO (especially the UVCS instrument), and also to future missions such as STEREO and Solar-B.

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Citations:

Summary: ''

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